

**ABSTRACT OF THE DISCLOSURE**

A dual-stage filtration cartridge is provided. The cartridge can be embodied as a mid-dilution hemodiafiltration cartridge or a redundant sterilization filtration cartridge. The cartridge includes a housing having a first end and an opposing second end. The housing has a primary fluid inlet and outlet at the first end of the cartridge. The housing also defines first and second filtration stages with the first filtration stage including first filtering elements disposed between the first and second ends of the housing. Each stage has a separate inter-lumen fiber space, but shares a common extra-lumen space. The primary fluid inlet communicates with the first filtering elements at the first end so that fluid flows through the first filtering elements toward the second end. The second filtration stage includes second filtering elements disposed between the first and second ends of the housing with the fluid outlet communicating with the second filtering elements at the first end.